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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,691	11/19/2003	Takashi Sato	00862.023316	5387

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EXAMINER


GOLDBERG, BRIAN J

ART UNIT PAPER NUMBER

2861

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/715,691	SATO ET AL. 	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brian Goldberg	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/19/2003</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: platen 7 of figure 8 (pg 17 ln 3) and VH-x of figure 1 (pg 21 ln 1). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 6A, 6B, 8A, and 9A of figure 8, VH-c of figure 1, and 301-3 of figure 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be

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labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4, 5, 6, 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Imanaka et al. (US 6382755).

5. Regarding claim 1, Imanaka et al. disclose "a printing apparatus for performing printing using a printhead having a plurality of printing elements, comprising: means for inputting print data (col 9 ln 61-64); converting means for converting print data to drive data corresponding to the printing elements (col 9 ln 64-67 and Fig 17A); transfer means for transferring the drive data to the printhead in a serial format in units of N bits at a time (Fig 17A and col 9 ln 53-55); driving means for driving the printing elements based upon the drive data (col 9 ln 57-58 and 705 of Fig 6); counting means for counting M-bits of data transferred first among the drive data in synchronism with transfer of the drive data by said transfer means, where  $N > M$  (801 of Fig 17A and col 5

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ln 9-16); detecting means for detecting an increase in the value of a count obtained by said counting means (col 5 ln 46-52); and voltage generating means for outputting a voltage that drives the printing elements (803 of Fig 17A and 701 of Fig 7); wherein if said detecting means has detected an increase in the value of the count, said voltage generating means raises the output voltage before said driving means performs drive based upon drive data transferred next (col 5 ln 46-52 and col 11 ln 66 – col 12 ln 7)."

6. Regarding claim 4, Imanaka et al. disclose "wherein in a case where the value of the count is classified into at least three stages and the value of the count changes by more than a prescribed stage, said detecting means detects an increase in the counted value (col 11 ln 13-21)." The count value is compared to at least three stages based on threshold values and based upon this, detection of the count value is made.

7. Regarding claim 5, Imanaka et al. disclose "wherein the printhead is a printhead that performs printing by discharging ink (col 14 ln 34-37)."

8. Regarding claim 6, Imanaka et al. disclose "wherein the printhead has an electrothermal converter for generating thermal energy applied to the ink (col 14 ln 37-47)."

9. Regarding claim 7, Imanaka et al. disclose "a printing apparatus for performing printing using a printhead having a plurality of printing elements, comprising: means for inputting print data (col 9 ln 61-64); converting means for converting print data to drive data corresponding to the printing elements (col 9 ln 64-67 and Fig 17A); transfer means for transferring the drive data to the printhead a prescribed number of bits at a time (Fig 17A and col 9 ln 53-55); driving means for driving the printing elements based

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upon the drive data (col 9 ln 57-58 and 705 of Fig 6); first detecting means for detecting amount of power load of printing elements driven simultaneously, based upon the drive data transferred by said transfer means (col 5 ln 46-52 and col 11 ln 66 – col 12 ln 7); second detecting means for detecting an increase in amount of power load (col 11 ln 13-21); and voltage generating means for outputting a voltage that drives the printing elements (803 of Fig 17A and 701 of Fig 7; wherein if said second detecting means has detected an increase in the amount of power load, said voltage generating means raises the output voltage before said driving means performs drive based upon drive data transferred next (col 5 ln 46-52 and col 11 ln 66 – col 12 ln 7).”

10. Regarding claim 8, Imanaka et al. disclose “a method of controlling a printing apparatus for performing printing by a printhead having a plurality of printing elements each driven by electrical energy, the number of printing elements driven simultaneously being changed in accordance with drive data, said method comprising: a transfer step of transferring drive data to the printhead in a serial format in units of N bits at a time (Fig 17A and col 9 ln 53-55); a counting step of counting M-bits of data transferred first among the transferred drive data, where  $N > M$  (801 of Fig 17A and col 5 ln 9-16); a determination step of determining whether the number of simultaneously driven printing elements has increased greatly, based upon a count value regarding print data that has been transferred previously and a count value regarding drive data to be transferred later (col 5 ln 46-52 and col 11 ln 66 – col 12 ln 7); and an energy increasing step of increasing electrical energy, which is supplied to the printhead, before the printhead is driven by drive data to be transferred later, if it has been determined that the number of

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simultaneously driven printing elements has increased greatly (col 5 ln 46-52, col 11 ln 66 – col 12 ln 7 and col 12 ln 53-65)."

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imanaka et al. in view of Hiwada and further in view of Masuda et al. Imanaka et al. disclose the claimed invention as set forth above with respect to claim 1. Thus Imanaka et al. meet the claimed invention except the limitations set forth in claim 2.

13. Hiwada teaches "wherein said voltage generating means (4 of Fig 1) has an error amplifier (9 of Fig 1) for outputting a control signal in accordance with an error (col 4 ln 53-59) between a reference voltage (8 of Fig 1) and an input voltage (e and f of Fig 1);"

14. Masuda et al. teach "if said detecting means has detected an increase in the value of the count, the value of the reference voltage is changed (col 11 ln 61 – col 12 ln 2)." It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to provide an error amplifier in the voltage generator to output a control signal in accordance with an error between a reference voltage and an input voltage, as well as change the value of the reference voltage due to an increase in the value of the count. One would have been motivated to so modify the voltage generator of Imanaka et al. for the benefit of maintaining a more constant output, and

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subsequently providing a more stable power source, by accounting for an error between reference and input voltages and changing the reference voltage due to an increase in the count value.

***Allowable Subject Matter***

15. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The prior art of record does not disclose the current adding circuit to obtain a voltage to be added to the output signal of the detection means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goldberg whose telephone number is 571-272-2728. The examiner can normally be reached on Monday through Friday, 9AM-5PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJG



DAVID M. GRAY  
PRIMARY EXAMINER